

CLAIMS

1. A protein chip reagent utilizing a cell-free protein synthesis system which comprises the following elements.
 - 5 a: a solution containing cell extract for a cell-free protein synthesis comprising a wheat embryo extract wherefrom endosperm components and low-molecular protein synthesis inhibitors are substantially removed is added to each different well of a container which is partitioned in plural sections;
 - b: at least the substances necessary for protein synthesis containing
 - 10 substrate and energy source and a specific translation template are added to the well mentioned in "a"; and
 - c: the solution in the well mentioned in "b" is freeze-dried preparation(by freeze-drying).
2. A protein chip reagent utilizing a cell-free protein synthesis system which comprises the following elements.
 - 15 a: a solution containing cell extract for a cell-free protein synthesis comprising a wheat embryo extract wherefrom endosperm components and low-molecular protein synthesis inhibitors are substantially removed is added to each different well of a container which is partitioned in plural sections;
 - b: at least the substances necessary for protein synthesis containing
 - 20 substrate and energy source and a specific translation template are added to the well mentioned in "a";
 - c: the solution in the well mentioned in "b" is freeze-dried preparation(by freeze-drying); and
 - 25 d: amount of a deliquescent substance in the freeze-dried preparation in the well mentioned in "c" is 0.01 part by weight or less to 1 part by weight of the protein in the said freeze-dried preparation.

3. A protein chip reagent utilizing a cell-free protein synthesis system which comprises the following elements.
- a: a solution containing cell extract for a cell-free protein synthesis comprising a wheat embryo extract wherefrom endosperm components and low-molecular protein synthesis inhibitors are substantially removed is added to each different well of a container which is partitioned in plural sections;
- b: at least the substances necessary for protein synthesis containing substrate and energy source and a specific translation template are added to the well mentioned in "a";
- c: the solution in the well mentioned in "b" is freeze-dried preparation(by freeze-drying);
- d: amount of a deliquescent substance in the freeze-dried preparation in the well mentioned in "c" is 0.01 part by weight or less to 1 part by weight of the protein in the said freeze-dried preparation; and
- e: different kind type of translation template is contained in each the solution mentioned in "b" and makes two or more kinds of proteins synthesizable in each different well of the container which is partitioned in plural sections.
4. A protein chip reagent utilizing a cell-free protein synthesis system which comprises the following elements.
- a: a solution containing cell extract for a cell-free protein synthesis comprising a wheat embryo extract wherefrom endosperm components and low-molecular protein synthesis inhibitors are substantially removed is added to each different well of a container which is partitioned in plural sections;
- b: at least the substances necessary for protein synthesis containing substrate and energy source and a specific translation template are added to the well mentioned in "a";

- c: the solution in the well mentioned in "b" is freeze-dried preparation(by freeze-drying);
- d: amount of a deliquescent substance in the freeze-dried preparation in the well mentioned in "c" is 0.01 part by weight or less to 1 part by weight of
- 5 the protein in the said freeze-dried preparation;
- e: different kind type of translation template is contained in each the solution mentioned in "b" and makes two or more kinds of proteins synthesizable in each different well of the container which is partitioned in plural sections; and
- 10 f: protein synthesized from the translation template is modified for fixation and is also coated with a substance having affinity to a substance added by the said modification for fixation to a surface in the well and/or a carrier in the well.
5. The protein chip reagent utilizing a cell-free protein synthesis system according to claim 4, wherein the modification for fixation is at least one which is selected from making into avidin, biotin, streptoavidin and His tag.
6. A kit for a cell-free protein synthesis containing the protein chip reagent utilizing a cell-free protein synthesis system mentioned in any of claims 1 to 5.
- 20 7. A test method for an interacting substance with a specific protein translated from a specific translation template containing the following elements where a reagent mentioned in any of claims 1 to 5 is used.
- (1) a protein chip reagent utilizing a cell-free protein synthesis system is dissolved upon each use;
- 25 (2) after dissolving, conditions for a protein translation reaction are regulated to synthesize a specific protein;
- (3) a substance to be detected is added and it is confirmed whether the

interaction with the specific protein which is synthesized upon each use takes place; and

(4) the interacted substance is judged either qualitatively or quantitatively using a marker.

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